Listing of the Claims: No amendments made herein.

1.- 3. (Cancelled).

4. (Previously Presented) A nonlinear precoding method based on modulo arithmetic for the transmit-side preequalization of K user signals to be transmitted concurrently using a frequency in a digital broadcast channel with known transmission behavior set up between a central transmitting station and K decentralized, non-interconnected receiving stations, the user signals consisting of data symbols a_k with k from 1 to K from a signal constellation having M_k levels and a signal point spacing A_k with a periodic multiple representation of the undisturbedly transmitted data symbols a_k in data symbol intervals congruent for K receive-side modulo decision devices, a transmit-power-minimizing selection of representatives v_k from the range of values $a_k+A_k \cdot M_k \cdot z_{kk}$ where z_{kk} are integers, and linear preequalization of the selected representatives v_k to form transmit signals x_k to be transmitted, comprising:

including interference symbols in the digital broadcast channel superimposed on the data symbols a_k and periodic multiple representation thereof due to cross-coupled user signals by an adapted periodic multiple representation, the interference symbols between the data symbol a_l with l from 1 to K and not equal to k and the data symbol a_k being assigned periodic representatives from a range of values $A_k \cdot M_k \cdot z_{lk}$ where z_{lk} are integers; and

eliminating the interference symbols by the K receive-side modulo decision devices.

5. (Previously Presented) A nonlinear precoding method according to claim 4, wherein mathematically required transmission behavior of the broadcast channel is achieved by factorization of the channel matrix **H**, describing current transmission behavior and known prior to transmission, into a reduced channel matrix $\mathbf{H}_{red}$ to be preequalized and a residual interference matrix **R**, where $\mathbf{H} = \mathbf{R}\,\mathbf{H}_{red}$, the residual interference matrix **R** assuming only 1 on the main diagonal and all other elements being row-wise integral multiples of the M_k levels of the signal constellation used and the reduced channel matrix $\mathbf{H}_{red}$ being obtained by factorization into a matrix **F** with orthogonal columns, a lower triangular matrix **B** and a permutation matrix **P** with the introduction of a receive-side scalar gain factor g according to $\mathbf{P}^T\mathbf{H}_{red}=1/g\ \mathbf{B}\ \mathbf{F}^{-1}$.

6. (Previously Presented) A nonlinear precoding method according to claim 5, wherein offset compensation is already carried out on the transmit signals x_k prior to transmission.

7. (Previously Presented) A nonlinear precoding method according to claim 4, wherein offset compensation is already carried out on the transmit signals x_k prior to transmission.